


PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY EXAMINATION REPORT
(PCT Article 36 and Rule 70)

Applicant's or agent's file reference 200113904WO	FOR FURTHER ACTION See Notification of Transmittal of International Preliminary Examination Report (Form PCT/PEA416)	
International application No. PCT/EP0208257	International filing date (<i>day/month/year</i>) 24.07.2002	Priority date (<i>day/month/year</i>) 04.08.2001
International Patent Classification (IPC) or both national classification and IPC F01D11/00		
Applicant SIEMENS AKTIENGESELLSCHAFT et al.		
<p>1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.</p> <p>2. This REPORT consists of a total of 5 sheets, including this cover sheet.</p> <p><input checked="" type="checkbox"/> This report is also accompanied by ANNEXES, i.e. sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).</p> <p>These annexes consist of a total of 5 sheets.</p>		
<p>3. This report contains indications relating to the following items:</p> <ul style="list-style-type: none"> I <input checked="" type="checkbox"/> Basis of the opinion II <input type="checkbox"/> Priority III <input type="checkbox"/> Non-establishment of opinion with regard to novelty, inventive step and industrial applicability IV <input type="checkbox"/> Lack of unity of invention V <input checked="" type="checkbox"/> Reasoned statement under Rule 66.2(a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement VI <input type="checkbox"/> Certain documents cited VII <input type="checkbox"/> Certain defects in the international application VIII <input type="checkbox"/> Certain observations on the international application 		
Date of submission of the demand 24.02.2003	Date of completion of this report	
Name and mailing address of the international preliminary examining authority:  European Patent Office D-80298 Munich Tel. +49 89 2399 - 0 Tx: 523656 epmu d Fax: +49 89 2399 - 4465	Authorized Officer Teissier, D Telephone No. +49 89 2399-7977	



**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT**

International application No. **PCT/EP02/08257**

I. Basis of the report

1. With regard to the **elements** of the international application (*Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17)*):

Description, Pages

1-15 as originally filed

Claims, Numbers

1-22 received on 24.07.2003 with letter of 22.07.2003

Drawings, Sheets

1/5-5/5 as originally filed

2. With regard to the **language**, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language: , which is:

- ☐ the language of a translation furnished for the purposes of the international search (under Rule 23.1(b)).
☐ the language of publication of the international application (under Rule 48.3(b)).
☐ the language of a translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in written form.
☐ filed together with the international application in computer readable form.
☐ furnished subsequently to this Authority in written form.
☐ furnished subsequently to this Authority in computer readable form.
☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. The amendments have resulted in the cancellation of:

- ☐ the description, pages:
☒ the claims, Nos.: 23
☐ the drawings, sheets:

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5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)).

(Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.)

6. Additional observations, if necessary:

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes: Claims	1-22
	No: Claims	
Inventive step (IS)	Yes: Claims	1-22
	No: Claims	
Industrial applicability (IA)	Yes: Claims	1-22
	No: Claims	

2. Citations and explanations

see separate sheet

Re Item V**Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement****V.1 Independent claim 1**

The subject-matter of claim 1 refers to a seal element for sealing a gap between two components which has a support structure and a sealing structure.

The document D1 (US-B1-6199871) which is considered as the closest prior art describes a seal for sealing an axial gap between two adjoining annular members which also has a support structure and a sealing structure.

The seal element described in claim 1 is different from the a seal described in document D1 as the support structure has a frame portion to which contacting members is connected via a branch portion extending away from that frame portion.

The problem solved by the application is to seal the gap between two components which gap varies because of their deformations and movements. The gap varies in a way that is not uniform. The contacting members of the present invention have the ability for deformation and movement independently from the others and sealing of large deformed or uneven surfaces is possible.

None of the prior art documents suggests a seal element as disclosed in claim 1. Also D2, which discloses a seal very similar to that of D1 does not suggest a seal element as disclosed in claim 1. Consequently the skilled person who would like to solve the problem would not find any hint in the cited documents, which would permit him to modify the seal of document D1 so as to arrive to the seal element of claim 1.

Claim 1 is therefore new and inventive, so as industrially applicable.

V.2 Independent claims 19 and 20

Independent claims 19 and 20 are new and inventive, so as industrially applicable

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for the same reasons disclosed under point V.1 mutatis mutandis.

V.3 Dependent claims 2-18, 21, and 22

Dependent claims 2-18, 21, and 22 bring new features to the independent claim 1, claim 19 or claim 20 and define new and inventive subject-matters of the claims. Dependent claims 2-18, 21, and 22 are industrially applicable.

V.4 Further remarks

V.4.1

Although claims 1, 19 and 20 have been drafted as separate independent claims, they appear to relate effectively to the same subject-matter and to differ from each other only with regard to the definition of the subject-matter for which protection is sought or in respect of the terminology used for the features of that subject-matter. The aforementioned claims therefore lack conciseness. Moreover, lack of clarity of the claims as a whole arises, since the plurality of independent claims makes it difficult, if not impossible, to determine the matter for which protection is sought, and places an undue burden on others seeking to establish the extent of the protection.

Hence, claims 1, 19, and 20 do not meet the requirements of Article 6 PCT.

V.4.2

Contrary to the requirements of Rule 5.1(a)(ii) PCT, the relevant background art disclosed in the document D1 is not mentioned in the description, nor is this document identified therein.

V.4.3

The description is not in conformity with the claims as required by Rule 5.1(a)(iii) PCT.

INTERNATIONAL SEARCH REPORT

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A. CLASSIFICATION OF SUBJECT MATTER		
IPC 7 F01D11/00 F16J15/08 F16J15/12		
According to International Patent Classification (IPC) or to both national classification and IPC		
B. FIELDS SEARCHED		
Minimum documentation searched (classification system followed by classification symbols) IPC 7 F01D F16J F02C		
Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched		
Electronic data base consulted during the international search (name of data base and, where practical, search terms used) EPO-Internal, WPI Data		
C. DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 6 237 921 B1 (LIOTTA GARY C ET AL) 29 May 2001 (2001-05-29) column 2, line 46 - line 56 column 3, line 37 - column 4, line 34	1,8,9, 20,21
Y	figures	2,3
Y	US 5 657 998 A (BAGEPALLI BHARAT SUMPATHKUMAR ET AL) 19 August 1997 (1997-08-19) cited in the application column 3, line 11 - line 35 figures	2,3
X	US 6 199 871 B1 (LAMPES ELIAS H) 13 March 2001 (2001-03-13) column 2, line 10 - column 4, line 49; figures	1,20,21
	-/-	
<input checked="" type="checkbox"/> Further documents are listed in the continuation of box C. <input checked="" type="checkbox"/> Patent family members are listed in annex.		
* Special categories of cited documents: "A" document defining the general state of the art which is not considered to be of particular relevance "E" earlier document but published on or after the international filing date "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified) "O" document referring to an oral disclosure, use, exhibition or other means "P" document published prior to the international filing date but later than the priority date claimed "T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention "X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone "Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art. "g" document member of the same patent family		
Date of the actual completion of the international search 23 October 2002		Date of mailing of the international search report 18/11/2002
Name and mailing address of the ISA European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Tx. 31 651 epo nl, Fax (+31-70) 340-3016		Authorized officer Teissier, D

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C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT		
Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	EP 0 545 589 A (GEN ELECTRIC) 9 June 1993 (1993-06-09) the whole document -----	1-23
A	US 5 586 773 A (BAGEPALLI BHARAT S ET AL) 24 December 1996 (1996-12-24) the whole document -----	1-23

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/EP 02/08257

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
US 6237921	B1	29-05-2001	BR 9906985 A CA 2307769 A1 CN 1277660 T EP 1046002 A1 JP 2002523712 T NO 20002324 A PL 340399 A1 WO 0012920 A1	26-09-2000 09-03-2000 20-12-2000 25-10-2000 30-07-2002 29-06-2000 29-01-2001 09-03-2000
US 5657998	A	19-08-1997	NONE	
US 6199871	B1	13-03-2001	BR 9906936 A CA 2308400 A1 CN 1277651 T EP 1045959 A1 JP 2002523708 T NO 20002325 A PL 340398 A1 WO 0012870 A1	03-10-2000 09-03-2000 20-12-2000 25-10-2000 30-07-2002 27-06-2000 29-01-2001 09-03-2000
EP 0545589	A	09-06-1993	US 5188507 A CA 2080152 A1 EP 0545589 A1 JP 5240066 A	23-02-1993 28-05-1993 09-06-1993 17-09-1993
US 5586773	A	24-12-1996	NONE	